

# PATENT SPECIFICATION

DRAWINGS ATTACHED



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## COMPLETE SPECIFICATION

### Improvements in Spray Guns for Grinding or Polishing.

I, NORMAN IVES ASHWORTH, a British Subject of 49 High Street, Henley-in-Arden, do hereby declare the invention for which I pray that a Patent may be granted to me and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to spray or discharge guns for grinding or polishing of the type comprising a gun body having a passage longitudinally therealong from the rear to the front for feeding a mixture of abrasive particles and water to a gun nozzle at the front of the passage, an air conduit passing from the rear to the front of the gun so that the front end forms a compressed air discharge nozzle axially of and concentric with and at the rear of the nozzle of the gun for the purpose of propelling the abrasive mixture from the gun nozzle.

According to the present invention, a spray or discharge gun of the type set forth is characterised in that the body of the gun is formed as a single casting and is itself shaped to form passages arranged longitudinally of the gun for a mixture of abrasive particles and water for compressed air, the front end of the air passage being fitted with a tube forming a discharge nozzle for the air and the rear end of the air passage being coupled to an air supply pipe.

In order that the invention may be clearly understood and readily carried into effect, reference may be had to the accompanying drawing, which illustrates in central cross section a gun constructed according to this invention.

According to a convenient embodiment of the invention, the interior of the body of the gun 1 is cylindrical at the front end and the cylindrical body of the gun nozzle 2 is fixed therein by means of a screwed cap 3, the nozzle having a cylindrical bore therethrough which flares outwardly at the rear end to give an enlarged inlet mouth for the inflow of the

abrasive mixture. An air passage 4 passes longitudinally along the body 1 in axial alignment with the gun nozzle 2 and an air discharge nozzle 5 is fixed therein. The air discharge nozzle 5 is in alignment with the gun nozzle and is distanced from the rear of the gun nozzle and the chamber 6 behind the gun nozzle passes rearwardly for a distance along and around the air discharge nozzle so that the air discharge nozzle projects into the chamber. From this chamber a passage 7 passes longitudinally along the body to the rear thereof and is connected by a flexible conduit to a tank containing the abrasive mixture and the air passage 4 is connected to an air pipe.

The air pressure is conveniently one hundred to one hundred and ten pounds per square inch. The bore of the air discharge nozzle 5 is smaller than the bore of the gun nozzle and a powerful suction is produced in the chamber 6 behind the gun nozzle which draws the abrasive mixture from the tank and provides an efficient supply from the gun nozzle at a great pressure. The abrasive mixture passes longitudinally along the body of the gun and there is no abrupt change in the direction of flow, so that resistance to flow is reduced to a minimum. The air and the abrasive mixture, in this embodiment, enter the body of the gun at the rear. A hand grip for the gun is located on one side of the body forward of the pipe connections. The nozzle of the gun and the air discharge nozzle may be longitudinally adjustable.

#### WHAT I CLAIM IS:—

1. A spray or discharge gun of the type set forth, characterised in that the body of the gun is formed as a single casting and is itself shaped to form passages arranged longitudinally of the gun for a mixture of abrasive particles and water and for compressed air, the front end of the air passage being fitted with a tube forming a discharge nozzle for the air and the rear end of the air passage being coupled to an air supply pipe.

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EXHIBIT

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2. A spray gun for polishing and grinding substantially as herein set forth and shown in the accompanying drawings.

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### PROVISIONAL SPECIFICATION

#### Improvements in Spray Guns for Grinding or Polishing.

I, NORMAN IVES ASHWORTH, a British  
5 Subject of 49 High Street, Henley-in-Arden,  
do hereby declare this invention to be de-  
scribed in the following statement:—

This invention relates to spray guns for  
10 grinding or polishing and it has for its object  
a gun which draws in the abrasive mixture and  
ejects same from the nozzle of the gun at a  
high velocity.

According to the present invention, a con-  
15duit for air under pressure passes longitudinally along the gun and the axis of the air dis-  
charge nozzle is in alignment with the axis of the bore of the nozzle of the gun. The passage  
for the abrasive mixture also passes longitudinally in the body of the gun into a chamber  
20 lying behind the nozzle of the gun, and sur-  
rounding the front of the air conduit, the  
nozzle of which is distanced from the rear of  
the bore through the nozzle of the gun. The  
air and the abrasive mixture of water and  
25 abrasive particles thus flow longitudinally  
through the gun so that the abrasive mixture  
is blown through the nozzle of the gun and  
there is a high reduction in pressure in said  
chamber giving a free inflow of abrasive mix-  
30 ture and there is not abrupt change of direc-  
tion of the abrasive mixture.

According to a convenient embodiment of  
35 the invention, the body of the gun is made in  
two longitudinal halves conveniently as cast-  
ings which are bolted together. The interior  
of the body is cylindrical at the front end and  
the cylindrical body of the gun nozzle is fixed  
therethrough which flares outwardly at the  
40 rear end to give an enlarged inlet mouth for  
the inflow of the abrasive mixture. One half  
of the body of the gun has a raised longitudi-  
nal rib located inwardly from the side which  
is bored to form part of the air passage and an  
45 air nozzle pipe is a push fit therein. The  
nozzle pipe is in alignment with the gun nozzle

and is distanced from the rear of the gun  
nozzle and the chamber behind the gun nozzle  
passes rearwardly to the front end of said rib,  
so that the air nozzle pipe projects into the  
chamber. From the lower side and rear end of  
50 this chamber a passage passes longitudinally  
along the body to the rear thereof and is con-  
nected to a flexible conduit to a tank contain-  
ing the abrasive mixture. A passage at the  
rear of the rib passes to the rear of the body  
55 of the gun and is connected to an air pipe.  
The two halves of the body of the gun are the  
same, except that said rib on one half nests in  
a recess in the other part, which recess con-  
tinues rearwardly as a part of the air passage.

The air pressure is conveniently one hun-  
dred to one hundred and ten pounds per  
square inch. The bore of the air jet pipe is  
smaller than the bore of the gun nozzle and a  
powerful suction is produced in the cylindri-  
60 cal chamber behind the gun nozzle which  
draws the abrasive mixture from the tank and  
provides an efficient supply from the jet  
nozzle at great pressure. The abrasive mixture  
passes longitudinally along the body of the  
65 gun and there is no abrupt change in the direc-  
tion of flow, so that resistance to flow is re-  
duced to a minimum. The air and the abra-  
sive mixture, in this embodiment, enter the  
body of the gun at the rear and the axis of the  
70 pipe couplings are in the longitudinal direc-  
tion of the body. A hand grip for the gun is  
located on one half of the body forward of the  
pipe connections. The nozzle of the gun and  
the air jet pipe may be longitudinally adjust-  
able. A rubber sealing ring may be engaged in  
75 a groove in the body to engage on the cylindri-  
cal surface of the nozzle of the gun.

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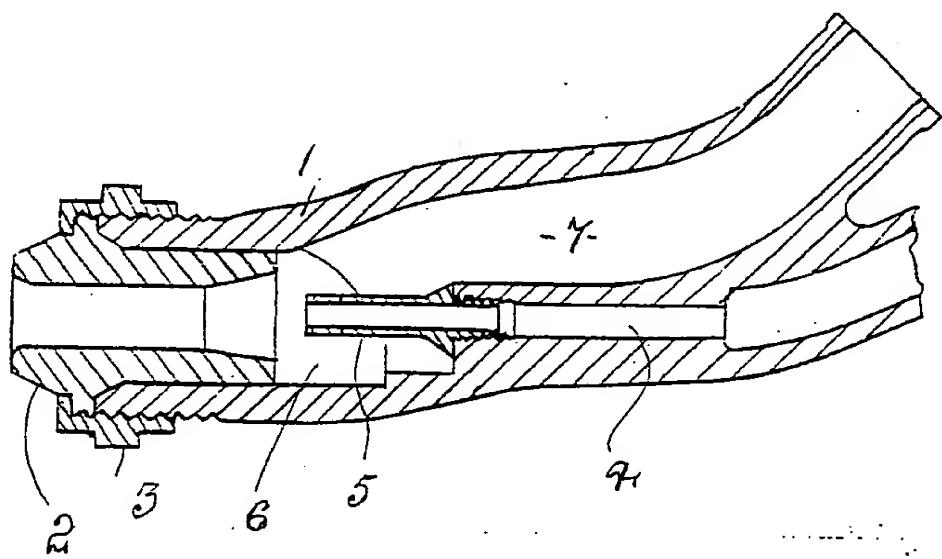
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COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of  
the Original on a reduced scale.*



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